

Claims:

1. A surgical clip applier, comprising:

a) a hollow member having a proximal end and a distal end;
 b) a clevis coupled to said distal end of said hollow member;
 c) a first jaw rotatably coupled to said clevis;
 d) a second jaw rotatably coupled to said clevis in opposed relation to said first jaw, said first and second jaws adapted to apply a surgical clip;

e) at least one pull/push wire coupled to said first and second jaws and extending through said hollow member to said proximal end of said hollow member;

f) actuation means coupled to said proximal end of said hollow member and said proximal end of said first push/pull wire for moving said first push/pull wire through said hollow member to cause a rotation of said first and second jaws about said clevis from an open to a closed position, wherein

at least one of said jaws is provided with a plurality of teeth arranged to puncture and damage tissue adjacent to the surgical clip.

2. A surgical clip applier according to claim 1, wherein:

both of said jaws are provided with a plurality of teeth arranged to puncture and damage tissue adjacent two sides of the surgical clip.

3. A surgical clip applier according to claim 1, wherein:
at least one of said jaws has a clip guiding channel and a hook shaped anvil at the end of said channel.
4. A surgical clip applier according to claim 3, wherein:
each of said jaws has a clip guiding channel and a hook shaped anvil at the end of said channel.
5. A surgical clip applier according to claim 4, wherein:
each of said anvils has a helical surface.
6. A surgical clip applier according to claim 4, wherein:
each of said anvils has a curved surface.
7. A surgical clip applier according to claim 6, wherein:
said surface is curved about a single axis.
8. A surgical clip applier according to claim 4, wherein:
each of said jaws has a longitudinal axis and a vertical axis perpendicular to the longitudinal axis, and
each of said channels is arranged at an angle relative to said vertical axis.
9. A surgical clip applier according to claim 8, wherein:
said angle is approximately 22 degrees.

10. A surgical clip applier, comprising:

- a) a hollow member having a proximal end and a distal end;
- b) a clevis coupled to said distal end of said hollow member;
- c) a first jaw rotatably coupled to said clevis, said first jaw having a first clip guiding channel terminating in a first anvil;
- d) a second jaw rotatably coupled to said clevis in opposed relation to said first jaw, said second jaw having a second clip guiding channel terminating in a second anvil;
- e) at least one pull/push wire coupled to said first and second jaws and extending through said hollow member to said proximal end of said hollow member; and
- f) actuation means coupled to said proximal end of said hollow member and said proximal end of said first push/pull wire for moving said first push/pull wire through said hollow member to cause a rotation of said first and second jaws about said clevis from an open to a closed position.

11. A surgical clip applier according to claim 10, wherein:

each of said anvils has a curved surface.

12. A surgical clip applier according to claim 10, wherein:

each of said anvils has a helical surface.

13. A surgical clip applier according to claim 10, wherein:
 each of said jaws has a longitudinal axis and a vertical axis perpendicular to the longitudinal axis, and
 each of said channels is arranged at an angle relative to said vertical axis.

14. A surgical clip applier according to claim 13, wherein:
 said angle is approximately 22 degrees.

15. An endoscopic surgical instrument, comprising:
 a) a hollow member having a proximal end and a distal end;
 b) a clevis coupled to said distal end of said hollow member;
 c) a first end effector rotatably coupled to said clevis;
 d) a first pull/push wire extending through said hollow member to said proximal end of said hollow member;
 e) a first linkage including a first rotating element rotatably coupled to said clevis and coupled to said first push/pull wire, and a second element rotatably coupled to said first element and rotatably coupled to said first end effector; and
 f) actuation means coupled to said proximal end of said hollow member and said proximal end of said first push/pull wire for moving said first push/pull wire through said hollow member to cause a rotation of said first end effector about said clevis.

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16. An endoscopic surgical instrument according to claim 15, further comprising:

g) a second end effector rotatably coupled to said clevis and in opposed relation to said first end effector;

h) a second pull/push wire extending through said hollow member to said proximal end of said hollow member; and

i) a second linkage including third and fourth elements, said third element rotatably coupled to said clevis and coupled to said second push/pull wire, and said fourth element rotatably coupled to said third element and rotatably coupled to said second end effector,

wherein said actuation means is coupled to said second push/pull wire for moving said second push/pull wire through said hollow member to cause a rotation of said second end effector about said clevis.

17. An endoscopic surgical instrument according to claim 15, wherein:

said first element is a substantially L-shaped member having an elbow rotatably coupled to said clevis.

18. An endoscopic surgical instrument according to claim 17,
wherein:

said substantially L-shaped member has a first arm of a first length to which said first push/pull wire is coupled and a second arm of a second length to which said second element is coupled, said first length being longer than said second length.

19. An endoscopic surgical instrument according to claim 18,
wherein:

said second element has a third length, said third length being shorter than said first length.

20. An endoscopic surgical instrument according to claim 16,
wherein:

said first and third elements each comprise a substantially L-shaped member having an elbow rotatably coupled to said clevis.

21. An endoscopic surgical instrument according to claim 20,
wherein:

each substantially L-shaped member has a first arm of a first length to which said first and second push/pull wires are respectively coupled and a second arm of a second length to which said second and fourth elements are respectively coupled, said first length being longer than said second length.

22. An endoscopic surgical instrument according to claim 21,
wherein:

said second element has a third length, said third length
being shorter than said first length.

23. An endoscopic surgical instrument, comprising:

- a) a hollow member having a proximal end and a distal end;
- b) a clevis coupled to said distal end of said hollow member;
- c) a first end effector rotatably coupled to said clevis;
- d) a first pull/push wire extending through said hollow member
to said proximal end of said hollow member;
- e) a first linkage including at least one element rotatably
coupled to said clevis and coupled to said first push/pull wire
and coupled to said first end effector, said first linkage
providing mechanical advantage in rotating said first end
effector; and
- f) actuation means coupled to said proximal end of said hollow
member and said proximal end of said first push/pull wire for
moving said first push/pull wire through said hollow member to
cause a rotation of said first end effector about said clevis.

24. An endoscopic surgical instrument according to claim 23 further comprising:

- g) a second end effector rotatably coupled to said clevis;
- h) a second pull/push wire extending through said hollow member to said proximal end of said hollow member; and
- i) a second linkage including at least one element rotatably coupled to said clevis and coupled to said second push/pull wire and coupled to said second end effector, said second linkage providing mechanical advantage in rotating said second end effector, wherein

said actuation means coupled to said proximal end of said second push/pull wire for moving said second push/pull wire through said hollow member to cause a rotation of said second end effector about said clevis.